

# **Coastal Tailed Frog (*Ascaphus truei*) Dispersion in Headwater Streams: A Hypothesis Indicating Seasonal Movements and its Relationship to Tailed Frog Occupancy of Headwater Streams**

## **Authors**

**Marc Hayes<sup>1</sup>**

**Timothy Quinn**

**Daniel J. Dugger**

**Tiffany L. Hicks**

During the low-flow period (August-October) of 2000-2, we recorded the distribution of coastal tailed frog (*Ascaphus truei*) among 131 non-fish bearing stream threads on basalt substrates in the Stillman Creek watershed of southwestern Washington. Older frog life stages were typically found further upstream than younger stages, implying adults move upstream. Seasonal resampling eight streams in 2002 revealed a 400-m upstream shift in the median position of adults from May-June to August-September, which supports this hypothesis. We suggest a cycle in which adults lay eggs downstream, move upstream as low flow approaches, and then return downstream at an unknown time. Frogs likely lay eggs in areas far enough downstream that they do not dry out during low flow, but not so far downstream as to subject weakly mobile hatchlings to scour or drifting passively into predator-rich fish-bearing waters. Adult frogs may move upstream because intermittent headwater reaches have more food. We further found that the likelihood of tailed frog occupying non-fish bearing basins increased with basin size. No tailed frog life stages indicating reproduction (eggs, larvae or metamorphs) were detected in the 30 1<sup>st</sup>-order basins, which was the smallest size grouping of basins we sampled. Absence of tailed frog reproduction in the smallest basins implies that the length of the non-fish bearing stream thread in these basins may be too short to meet frog habitat requirements. As the abundance of non-fish bearing basins in southwestern Washington is skewed toward the smaller sizes, the constraints we suggest for coastal tailed frog life history will contribute significantly to its pattern of occupancy over this landscape.

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<sup>1</sup> Washington Department of Fish and Wildlife, Habitat Program, 600 Capitol Way N, Olympia WA 98501-1091, PHONE: 360-902-2567, EMAIL: [havesmph@dfw.wa.gov](mailto:havesmph@dfw.wa.gov)